Formaldehyde

In 1980, laboratory findings showed that exposure to formaldehyde could cause nasal cancer in rats. Since then, the question of whether exposure to formaldehyde increases a person's risk of cancer has been the subject of considerable controversy.

Early concerns focused on the use of formaldehyde in the manufacture of mobile homes. Soon, however, questions were raised about workers routinely exposed to the substance: anatomists, embalmers, pathologists, other medical workers, and industrial workers who produce formaldehyde (and formaldehyde resins and plastics), plywood, photographic film, and permanent press fabrics.

During the 1980s, many studies, including major ones by the National Cancer Institute (NCI), were conducted to determine whether these workers had a greater risk for developing cancer than people in the general population. Much of this research was intended to help two regulatory agencies, the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA), develop regulations, if necessary, to protect the public and workers from unnecessary risks of cancer because of formaldehyde exposure. Investigations at NCI have focused on industrial workers and professionals such as anatomists and embalmers. Results from these two groups were not consistent. Anatomists and embalmers were at greater risk for leukemia and brain cancer than the general population, but industrial workers were not. Industrial workers employed in the chemical, plastics, plywood, and photographic film industries

developed nasopharyngeal cancer more often than the general population. The risk increased sevenfold for workers with heavy exposure to formaldehyde and formaldehyde-containing particulates. Studies in the Netherlands and Denmark have shown elevated rates of nasal cancer in many persons exposed to formaldehyde.

An NCI study that noted a 30-percent increase in lung cancer mortality among industrial workers generated the most controversy because the rate of lung cancer did not increase with the level of exposure. The excess was not evident at all industrial plants and was confined to workers in resin and molding compound production. This led NCI investigators to conclude that factors other than formaldehyde might have been involved. Other scientists believe formaldehyde exposure may be the cause of the lung cancer excess.

By 1987, EPA classified formaldehyde as a "probable human carcinogen" under conditions of unusually high or prolonged exposure. The International Agency for Research on Cancer also concluded that formaldehyde is a probable human carcinogen. The OSHA and EPA concluded that new rules governing exposure limits were necessary. In November 1987, OSHA proposed that the occupational standard for formaldehyde exposure be reduced from 3 parts per million (ppm) to 1 ppm, averaged over an 8-hour workday; this proposal became law the following month. In May 1992, the law was amended, and the formaldehyde exposure limit was reduced to 0.75 ppm. (Information is available from the Occupational Safety and Health Administration, Public Affairs Office, Room N3647, 200 Constitution Avenue, NW., Washington, DC 20210. You may also contact the Public Affairs Office by calling 202–693–1999.)

Formaldehyde use also has been studied in nonindustrial settings. In February 1982, the Consumer Product Safety Commission (CPSC) ordered a ban on all sales of urea formaldehyde

foam insulation (UFFI) for homes and schools. The CPSC ruled that because formaldehyde gas often is released from foam after installation, UFFI presents an "unreasonable health risk." In April 1983, however, a Federal appellate court struck down this ban. The court ruled that there was not sufficient scientific evidence to justify the ban. The CPSC still believes that the evidence shows that risks are associated with UFFI. However, CPSC officials advise consumers to leave insulation alone if they have not experienced any health problems.

For information about health risks posed by home products, you may write to the Consumer Product Safety Commission Public Affairs Office, 4330 East-West Highway, Bethesda, MD 20816. The CPSC also operates a toll-free hotline; the telephone number is 1–800–638–CPSC (1–800–638–2772). When you dial this number, you will be able to get information from CPSC's pamphlet "UFFI: Urea Formaldehyde Foam Insulation." When you are instructed to press the 3-digit code, press 300. An information operator can read to you from the publication. You cannot order the publication by phone but instead must write to the above address. The TTY number for deaf and hard of hearing callers is 1–800–638–8270.

Formaldehyde also is used in cosmetics, drug products, paper, textiles, and a variety of other products for the home. Information about drugs and cosmetics may be obtained from the U.S. Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857. The toll-free number is 1–888–INFO–FDA (1–888–463–6332).

# # #

Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://www.cancer.gov to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301–402–5874 and listen to recorded instructions.

This fact sheet was reviewed on 7/30/99